

## Amendments to the Claims

Prior to the examination, please cancel claims 4, 10-11, 20 and 26, amend claims 1-3, 5-9, 12-19, 21-25, 27-28, 30-31 and add claims 33-37. Following this amendment, claims 1-3, 5-9, 12-19, 21-25 and 27-37 will be pending.

Claim 1. (Currently Amended) A method for the treatment ~~or prevention~~ of a condition requiring a reduction in the activity of a CYP2A enzyme ~~in an individual in need thereof~~ comprising administering to an individual in need thereof an effective amount of one or more substances selected from the group consisting of (i) a substances which inhibits CYP2A activity; (ii) a substances which inhibit transcription, ~~of a translation of the gene encoding CYP2A, or~~ ~~both;~~ , (iii) a substance which inhibits translation of a gene encoding CYP2A, and ~~(iv)~~ a substances which deletes all or a portion of the gene encoding CYP2A.

Claim 2. (Currently Amended) ~~A~~ The method according to claim 1 wherein said CYP2A enzyme is CYP2A6.

Claim 3. (Currently Amended) ~~A~~ The method according to claim ~~1 or 2~~ 33 wherein said condition is smoking and inhibition of the CYP2A enzyme inhibits the conversion of nicotine to cotinine.

Claim 4. (Cancelled)

Claim 5. (Currently Amended) ~~A~~ The method according to claim 3 ~~claim 4~~, wherein said nicotine is formulated for oral administration.

Claim 6. (Currently Amended) ~~A~~ The method according to claim 5, wherein said one or more substances and said nicotine are formulated in a single composition.

Claim 7. (Currently Amended) ~~A-The method according to any one of claims 1 to 6,~~  
wherein said substance ~~which inhibit CYP2A6 are selected from~~ is methoxsalen, psoralen,  
tranylcypromine, pilocarpine, coumarin, chromone, esculetin, phenelzine, paroxetine, selegiline,  
~~and pargyline, or combinations thereof.~~

Claim 8. (Currently Amended) ~~A-The method according to any one of claims 1 to 6~~ claim  
1, wherein said ~~substances~~ substance ~~which inhibit CYP2A6 are selected from methoxsalen,~~  
~~coumarin and~~ is tranylcypromine.

Claim 9. (Currently Amended) ~~A-The method according to claim 8, wherein methoxsalen~~  
~~is administered in an amount from 0.1 mg to 50 mg; coumarin is administered in an amount from~~  
~~1 mg to 1000 mg; or~~ tranylcypromine is administered in an amount from 0.1 mg to 80 mg.

Claims 10.-11. (Cancelled)

Claim 12. (Currently Amended) ~~A-The method according to any one of claims 1 to 11~~ claim  
1, further comprising contemporaneously administering an inhibitor of CYP2B6 ~~to said~~  
~~individual contemporaneously with said one or more substance.~~

Claim 13. (Currently Amended) ~~A-The method according to claim 1, or 2~~ wherein said  
condition is cancer and inhibition of the CYP2A enzyme inhibits the metabolism of a  
procarcinogen to a carcinogen.

Claim 14. (Currently Amended) ~~A-The method according to claim 13, wherein said~~  
procarcinogen is a N-nitrosodialkylamine selected from the group consisting of N-

nitrosodiethylamine, N- nitrosodimethylamine, and 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanone.

Claim 15. (Currently Amended) ~~The method of any one of claims 1-14~~ The method according to claim 1, wherein said individual is suffering from a condition selected from (i) addiction to tobacco, (ii) risk of developing an addiction to tobacco, (iii) risk of developing a smoking associated cancer, and (iv) exposure to one or more compounds which are converted to carcinogens by CYP2A6.

Claim 16. (Currently Amended) ~~A composition for use in the treatment or prevention of a condition requiring a reduction in the activity of a CYP2A enzyme comprising an effective amount of one or more substances in admixture with a suitable diluent or carrier wherein said substance is selected from the group consisting of (i) a substance which inhibits CYP2A activity; (ii) a substance which inhibits transcription of a gene encoding CYP2A, (iii) a substance which inhibits translation of a gene encoding CYP2A, and (iv) a substance which deletes all or a portion of the gene encoding CYP2A~~ (i) substances which inhibit CYP2A activity; (ii) substances which inhibit transcription, translation of the gene encoding CYP2A, or both; (iii) substances which delete all or a portion of the gene encoding CYP2A in admixture with a suitable diluent or carrier.

Claim 17. (Currently Amended) ~~A~~ The composition according to ~~claim 15~~ claim 16 wherein said CYP2A enzyme is CYP2A6.

Claim 18. (Currently Amended) The composition of claim 16, ~~A composition according to claim 16 or 17~~ wherein said condition is smoking and inhibition of the CYP2A enzyme inhibits the conversion of nicotine to cotinine.

Claim 19. (Currently Amended) ~~A~~ The composition according to ~~of~~ claim 18, wherein said composition further comprises nicotine.

Claim 20. (Cancelled)

Claim 21. (Currently Amended) ~~A~~ The composition according to ~~any one of claims 16-19~~, wherein said substance which inhibits CYP2A is selected from ~~methoxsalen~~, psoralen, tranylcypromine, pilocarpine, coumarin, chromone, esculetin, phenelzine, paroxetine, selegiline and pargyline.

Claim 22. (Currently Amended) A method for enhancing the effectiveness of a nicotine replacement therapy comprising contemporaneously administering to an individual in need thereof (a) nicotine and (b) one or more substances selected from the group consisting of (i) a substance which inhibits CYP2A activity; (ii) a substance which inhibits transcription of a gene encoding CYP2A, (iii) a substance which inhibits translation of a gene encoding CYP2A, and (iv) a substance which deletes all or a portion of the gene encoding CYP2A ~~(i) substances which inhibit CYP2A activity; (ii) substances which inhibit transcription, translation of the gene encoding CYP2A, or both; (iii) substances which delete all or a portion of the gene encoding CYP2A.~~

Claim 23. (Currently Amended) ~~A method according to claim 27~~ The method according to claim 22, wherein said substance which inhibits CYP2A6 and is selected from ~~methoxsalen~~;

psoralen, tranylcypromine, pilocarpine, coumarin, chromone, esculetin, phenelzine, paroxetine, selegiline and pargyline.

Claim 24. (Currently Amended) A kit for use in the method of claim ~~22 or 23~~ 22 comprising (a) nicotine and (b) one or more substances selected from the group consisting of (i) a substance which inhibits CYP2A activity; (ii) a substance which inhibits transcription of a gene encoding CYP2A, (iii) a substance which inhibits translation of a gene encoding CYP2A, and (iv) a substance which deletes all or a portion of the gene encoding CYP2A~~(i) substances which inhibit CYP2A activity; (ii) substances which inhibit transcription, translation of the gene encoding CYP2A, or both; (iii) substances which delete all or a portion of the gene encoding CYP2A.~~

Claim 25. (Currently Amended) A method for determining the risk of an individual becoming a smoker or for developing cancer comprising determining the genotype or phenotype of a CYP2A allele in the individual wherein the presence of a mutant allele is predictive of a decreased risk of smoking.

Claim 26. (Cancelled)

Claim 27. (Currently Amended) A method according to ~~claims 25 or 26~~ 25, wherein said CYP2A enzyme is CYP2A6.

Claim 28. (Currently Amended) A method according to claim 25 ~~any one of claims 25 to 27~~, comprising analyzing a DNA-containing bodily sample from the individual for the presence of a mutant allele of human cytochrome P450 isozyme CYP2A6.

Claim 29. (Original) A method according to claim 28, wherein said DNA-containing bodily sample is selected from a bodily fluid, a blood sample, blood plasma, and peripheral leukocytes.

Claim 30. (Currently Amended) A kit for use in the method of ~~any one of claims 25-29~~ claim 25, comprising means to identify a mutant allele of CYP2A6.

Claim 31. (Currently Amended) The method of claim ~~25-29~~ 25, the method comprising the steps of: administering a dose of a CYP2A6 substrate to the individual and determining in a bodily sample from the individual the level of said CYP2A6 substrate or a metabolite of said CYP2A6 substrate.

Claim 32. (Original) A kit for use in the method of claim 31, comprising a CYP2A6 substrate and means for quantifying said CYP2A6 substrate or a metabolite of said CYP2A6 substrate.

Claim 33. (New) A method according to claim 2, further comprising contemporaneously administering nicotine.

Claim 34. (New) The method according to claim 1, wherein said substance is coumarin.

Claim 35. (New) The method according to claim 34, wherein coumarin is administered in an amount from 1 mg to 1000 mg.

Claim 36. (New) A composition comprising nicotine and an effective amount of one or more substances in admixture with a suitable diluent or carrier wherein said one or more substances are selected from the group consisting of (i) a substance which inhibits CYP2A activity; (ii) a substance which inhibits transcription of a gene encoding CYP2A, (iii) a substance which

inhibits translation of a gene encoding CYP2A, and (iv) a substance which deletes all or a portion of the gene encoding CYP2A.

Claim 37. (New) The method according to claim 1, wherein said individual is suffering from a condition selected from malignant disease, psychosis, schizophrenia, Parkinson's disease, anxiety, depression, alcoholism, opiate dependence, memory deficits, ulcerative colitis, and cholinergic deficits.